

CLAIMS

What is claimed is:

1 **1.** A car audio amplifier system comprising:

2 (A) a control unit including,

3 (1) at least one input connector for receiving at least one respective channel of
4 audio signal from a source,

5 (2) circuitry, coupled to receive the audio signal from the input connector, for
6 modifying the received audio signal;

7 (3) at least one control for determining a characteristic of the modifying; and

8 (4) at least one output connector for outputting the modified audio signal; and

9 (B) an amplifier unit physically separate from, and couplable to, the control unit and
10 including,

11 (1) an input connector for receiving the modified audio signal output from the
12 control unit,

13 (2) amplification circuitry coupled to the input connector for amplifying the
14 modified audio signal, and

15 (3) an output connector for outputting the amplified modified audio signal to a
16 loudspeaker.

1 **2.** The car audio amplifier system of claim 1 wherein:

2 the circuitry of the control unit includes a pre-amplifier.

1 **3.** The car audio amplifier system of claim 1 wherein:

2 the input connector of the control unit is further for receiving at least two channels of
3 audio signal from the source;

4 the output connector of the control unit is further for outputting at least two channels of
5 modified audio signal; and

6 the circuitry of the control unit includes means for combining two channels of audio
7 signal from the source and providing the combined signal to one channel at the output connector
8 of the control unit.

1 4. The car audio amplifier system of claim 3 wherein:

2 the two channels of audio signal from the source include a Left channel and a Right
3 channel; and

4 the circuitry of the control unit provides a modified Left channel signal to a Front Left
5 channel and a Rear Left channel at the control unit's output connector, a modified Right channel
6 signal to a Front Right channel and a Rear Right channel at the control unit's output connector,
7 and a combination of the modified Left channel signal and the modified Right channel signal to
8 one of a Center channel and a Subwoofer channel at the control unit's output connector.

1 5. The car audio amplifier system of claim 1 wherein:

2 the amplifier unit includes a plurality of input connectors; and

3 the amplifier circuitry amplifies audio signals provided at a selected one of the plurality
4 of input connectors.

1 6. The car audio amplifier system of claim 5 wherein:

2 the amplifier unit includes a first input connector comprising a set of RCA jacks, and a
3 second input connector comprising a DIN connector.

1 7. The car audio amplifier system of claim 1 wherein:

2 all of the controls of the audio amplifier system are located on the control unit.

1 8. The car audio amplifier system of claim 1 wherein the characteristic comprises gain.

1 9. The car audio amplifier system of claim 1 wherein:

2 the control unit comprises a plurality of controls each for determining a respective one of
3 a plurality of characteristics; and

4 the plurality of characteristics comprises gain and at least one of high pass filter, low pass
5 filter, delay, phase, subsonic filter, subwoofer parametric frequency, and bass boost.

1 10. The car audio amplifier system of claim 1 wherein:

2 the amplifier unit comprises a docking bay adapted for docking the control unit.

1 11. The car audio amplifier system of claim 10 wherein:
2 the docking bay comprises an input connector adapted to mate with the output connector
3 of the control unit when the control unit is docked.

1 **12.** An amplifier system for use in a vehicle which includes a passenger compartment having
2 a head unit providing a plurality of audio channel signals, the amplifier system comprising:

3 (A) a control unit adapted to mount in the passenger compartment, and comprising,
4 a control unit input connector for receiving the plurality of audio channel signals
5 from the head unit,

6 a plurality of controls including at least a gain control,
7 circuitry, coupled to the control unit input connector, for modifying the plurality
8 of audio signals in response to settings of the controls, and

9 a control unit output connector for outputting the plurality of modified audio
10 signals; and

11 (B) an amplifier unit comprising,

12 an amplifier input connector coupled to the control unit output connector to
13 receive the modified audio signals,

14 amplifier circuitry coupled to the amplifier input connector for amplifying the
15 modified audio signals; and

16 speaker terminals coupled to the amplifier circuitry for outputting the amplified
17 modified audio signals.

1 13. The amplifier system of claim 12 further comprising:
2 a cable coupling the amplifier input connector to the control unit output connector.

1 14. The amplifier system of claim 13 wherein:
2 the control unit output connector comprises a DIN connector, the amplifier input
3 connector comprises a DIN connector, and the cable comprises a DIN umbilical cable.

1 15. The amplifier system of claim 12 wherein the plurality of controls comprises all off the
2 amplifier system's gain controls.

1 16. The amplifier system of claim 12 wherein the plurality of controls further includes a filter
2 control.

1 17. The amplifier system of claim 16 wherein the plurality of controls further includes a
2 delay control.

1 18. The amplifier system of claim 17 wherein the plurality of controls further includes a
2 phase control.

1 19. The amplifier system of claim 18 wherein the plurality of controls further includes a bass
2 boost control.

1 20. The amplifier system of claim 12 wherein the plurality of controls further includes a
2 master volume control which operates in addition to a gain control of any respective channel.

1 21. The amplifier system of claim 12 wherein the plurality of controls further includes a
2 multi-channel equalizer.

1 22. The amplifier system of claim 12 wherein the control unit further includes:
2 an auxiliary input connector for receiving audio channel signals from an auxiliary unit;
3 and
4 an input selector control for selecting whether the circuitry modifies the audio channel
5 signals from the input connector or the audio channel signals from the auxiliary input connector.

1 23. The amplifier system of claim 22 wherein the control unit further includes:
2 input volume means for compensating for signal level difference between audio channel
3 signals from the input connector and audio channel signals from the auxiliary input connector,
4 whereby when a user switches between the head unit and the auxiliary unit by operating the input
5 selector control, a difference in audio volume from the loudspeakers is controlled.

1 24. The amplifier system of claim 12 wherein:
2 the amplifier unit includes a docking bay into which the control unit can be docked; and
3 means for connecting the control unit output connector to the amplifier input connector.

1 25. The amplifier system of claim 12 wherein the plurality of audio channel signals provided
2 by the head unit includes Front Left, Front Right, Center, Rear Left, Rear Right, and Subwoofer
3 audio channel signals, and wherein the plurality of controls comprises:

4 Front gain,
5 Front high pass filter,
6 Center gain,
7 Center high pass filter,
8 Center delay,
9 Rear gain,
10 Rear high pass filter,
11 Rear delay,
12 Subwoofer gain,
13 Subwoofer low pass filter,
14 Subwoofer phase,
15 Subwoofer subsonic filter,
16 Subwoofer parametric frequency, and
17 Subwoofer bass boost.

1 **26.** A method whereby a person adjusts audio characteristics of an audio system, the audio
2 system having a head unit, a control unit coupled to the head unit, an external amplifier coupled
3 to the control unit, and loudspeakers coupled to the external amplifier, all channel gain controls
4 for the amplifier being located on the control unit, wherein the head unit, the control unit, and the
5 loudspeakers are located within a passenger compartment of a vehicle, the method comprising:

6 being positioned within the passenger compartment;
7 operating the head unit to provide a plurality of audio channel signals to the control unit;
8 while listening to sound produced by the loudspeakers which are driven by the external
9 amplifier according to modified audio channel signals from the control unit,
10 adjusting a control on the control unit, to control a modification by the control
11 unit of one of the audio channel signals provided by the head unit, until a desired acoustic
12 result is obtained by such adjusting.

1 27. The method of claim 26 wherein:

2 adjusting the control comprises adjusting a channel gain control.

1 28. The method of claim 27 wherein:

2 adjusting the control further comprises adjusting a channel filter control.

1 29. The method of claim 28 further comprising:

2 selecting back and forth between audio signals provided by the head unit and audio
3 signals provided by an auxiliary unit; and

4 adjusting an input level adjustment control on the control unit, to substantially equalize
5 an audio volume produced in response to the audio signals provided by the head unit and an
6 audio volume produced in response to the audio signals provided by the auxiliary unit.

1 30. The method of claim 26 further comprising:

2 removing the control unit from the passenger compartment; and

3 docking the control unit into a docking bay on the external amplifier.